Version 3
Control for natural ventilation

WCC 106 UL

MotorController

Comfort ventilation | Operating voltage | ±24V DC actuators | MotorLink® | UL certification - Controls

Application

- for daily comfort ventilation
- for controlling ±24V DC standard window actuators and window actuators with MotorLink®
- up to 2 comfort ventilation groups with a max total power consumption of 6A
- may be combined with external temperature and time automated BMS

MotorController for controlling ±24V DC standard actuators and MotorLink® actuators for daily comfort ventilation. It can also control locking actuators. The number of actuators that may be connected to the motor line depends on the type of actuator – see the table, “Maximum number of actuators per MotorController” for type/number.

Description

The MotorController controls (opens/closes) the window actuators based on a signal from the connected component(s) e.g. comfort keypad (operating keypad), room sensors and weather sensors.

We recommend connecting a comfort keypad when sensors and other operators are connected. This way users, via the comfort keypad, can override the signals and open or close windows themselves should there be a need for more or less fresh air.

Connecting a room thermostat to the MotorController, gives the option for incremental opening / closing of the windows when the temperature setpoint is exceeded.

Up to 10 MotorControllers can be connected as part of a larger solution and may be connected to the same weather station.

Prioritized inputs

The actuators may be overridden via three prioritized inputs. All switches must be potential free / dry contacts.

- common CLOSE ALL/safety (rain) function (highest priority)
- hand operation of the motor line
- automated control of the motor line (lowest priority)

Power supply for external units

When connecting sensors the auxiliary power from the built-in 24V DC 500mA power supply can be used.

Configuration

The MotorController has 8 DIP switches for configuration. The factory setting for all the DIP switches is OFF.

Specifications

- up to 2 motor groups with up to total max power consumption of 6A
- Max output voltage 24VDC at 120VAC
- simple and quick installation
- up to 10 MotorControllers may be linked
- rain/wind sensors can be connected
- roomthermostat can be connected
- 3 prioritized inputs

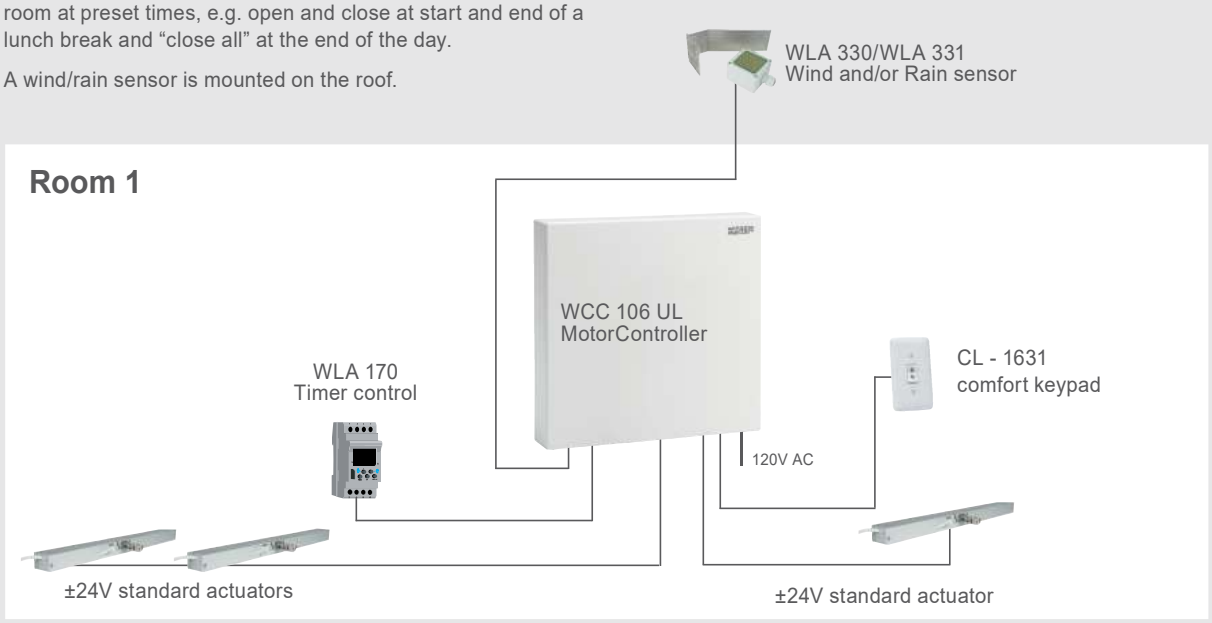
The MotorController may either be mounted horizontally or vertically on a wall.

DIP-switch		
Switch	**Description**	**ON / OFF function**
1	Maintained action	ON: the actuators open/close completely when the comfort keypad is pressed. OFF: the actuators run for as long as the comfort keypad is being pressed.
2	Rain delay	ON: the rain signal must be active min. 60 sec. before the actuators begin to close. OFF: the actuators begin to close as soon as the rain signal is activated.
3	Extended hand timer	ON: after manuel override the actuators are locked for 2 hours (except rain/safety signals). OFF: after manuel override the actuators are locked for 30min (except rain/safety signals).
4	Surveillance	ON: activate cable survaillance on input X10.1 (rain). The input must be terminated with 10k resistor. OFF: no cable surveillance.
5	MotorLink®	ON: MotorLink® motors are connected to the MotorController. OFF: ±24V standard motors are connected to the MotorController.
6	100% speed	ON: actuators run with 100% speed, when run manually. OFF: actuators run with 75% speed, when run manually.
7	Accumulated step	ON: actuators open/close in steps, when a thermostat e.g. WLA 110 is connected to the MotorController and the setpoint is exceeded. Opening step: 5% for every 5min Closing step: 10% for every 10min OFF: actuators open/close completely when a thermostat e.g. WLA 110 is connected to the MotorController and the setpoint is exceeded
8	Motor line 2, motors run independently	ON: the actuators on motor line 2 are controlled individually via input X2, X3, X4 and X5. Up to 4 actuators can be connected to motor line 2 and all actuators must be single / -1 actuators. The actuator's serial number determines, which input controls which actuator, the serial number is automatically identified by the firmware in the MotorController. X2 – controls the actuator with the highest serial number X3 – controls the actuator with the second-highest serial number X4 – controls the actuator with the second-lowest serial number X5 – controls the actuator with the lowest serial number The actuators can be identified by activating the different inputs. The serial number can also be read on the product label on the actuator. Actuators on motor line 1 are controlled together via input X10. Up to 4 actuators can be connected to motor line 1. All actuators on motor line 1 must be of the same type, incl. team size and chain length. The actuators must be either single /-1 or quad /-4. All connected actuators on both motor lines must be MotorLink® actuators and DIP switch #5 must also be set to ON. OFF: 2 Motor groups with a motor line each

Example 1: WCC 106 UL with timer control and wind/rain sensor

In the room 3 pcs. ±24V standard actuators are connected to the MotorController. A comfort keypad is installed for individual opeartion of the windows.
A timer control is fitted that opens / closes the windows in the room at preset times, e.g. open and close at start and end of a lunch break and “close all” at the end of the day.

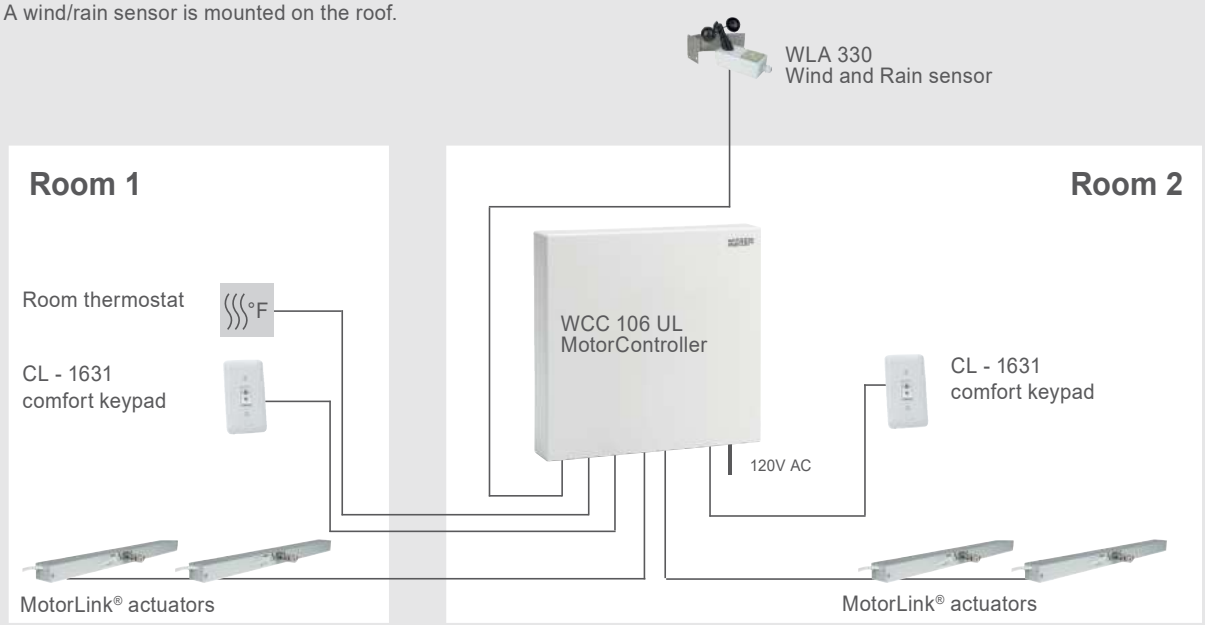
A wind/rain sensor is mounted on the roof.



Example 2: WCC 106 UL with room thermostat and comfort keypads

In both rooms MotorLink® actuators are connected and comfort keypads are installed for individual opeartion of the windows.
In room 1 a room thermostat is connected for automatic opening/ closing of the window based on the room temperature.

A wind/rain sensor is mounted on the roof.



Technical specifications		
Output current	6A incl. load on X7 (max 0.5A)	
Motor groups / Motor lines	Up to 2 motor groups with each 1 motor line. Either ±24V standard actuators or MotorLink® actuators can be connected to the MotorController	
Primary voltage	100-240 VAC 1.7A 50/60Hz	
Actuator secondary voltage	Nominal voltage Open circuit voltage at 230V AC (no load) Ripple at max load	24V DC (±15%) 24V DC @ 20°C 200mVp-p
Power consumption	Idling < 0.5W Max load 150W	
Leakage current	max 0.75mA @ 240VAC	
Inrush current on primary side	40A < 5ms w. 120V Max. 3 x WCC 106 UL per 10A power supply group. Circuit breaker “C” characteristic.	
AUX	24V DC, 500mA	
Operating conditions	+23°F - +113°F, for indoor installation, the controller may not be covered	
Switch-on duration	ED 40% (4 min. per 10 min.)	
Connection cable	**Actuators** Flexible max AWG 10 / solid max AWG 8. **Other components** Min AWG 24 / max AWG 16	
Size	8 7/16’’ x 8 1/8’’ x 1 7/16’’ (W x H x D)	
Material	Plastic	
Color	White (RAL 9016)	
Weight	2.03 lbs	
IP rating	IP20	
Safety class	I (with PE)	
Delivery includes	MotorController with 6’ 6 3/4’’ cable with US plug (type B)	
Approval	UL	
Note	We reserve the right to make technical chagnes and correct typing errors	

Max number of actuators per MotorController

The following table shows the maximum number of actuators, based on actuator type (±24V standard or MotorLink®) that can be connected to the MotorController. The total current consumption connected to the motor line may not exceed 4A and the total current consumption for both motor lines may not exceed 6A incl. load on X7 (AUX max 0.5A).

	Per Motor line		Per MotorController	
Actuator type	**±24V actuators**	**MotorLink® actuators**	**±24V actuators (2 motor lines)**	**MotorLink® actuators (2 motor lines)**
WMD 820-1	4	4	6	6
WMD 820-2	4	2	6	4
WMD 820-3	3	3	6	6
WMD 820-4	4	4	4	4
WMU 831 / 851-1	4	4	6	6
WMU 831 / 851-2	4	2	6	4
WMU 831 / 851-3	3	3	6	6
WMU 831 / 851-4	4	4	4	4
WMU 836-1	2	2	4	4
WMU 836-2	2	2	4	4
WMU 852-1	2	2	3	3
WMU 852-2	2	2	2	2
WMU 861-1	2	2	4	4
WMU 861-2	2	2	4	4
WMU 842 / 862 / 882-1	2	2	3	3
WMU 842 / 862 / 882-2	2	2	2	2
WMU 863 / 883-1	1	1	2	2
WMU 864 / 884-1	1	1	1	1
WMX 503 / 504 / 523 / 526-1	8	4	12	8
WMX 503 / 504 / 523 / 526-2	6	2	12	4
WMX 503 / 504 / 523 / 526-3	6	3	12	6
WMX 503 / 504 / 523 / 526-4	8	4	12	8
WMX 803 / 804 / 813 / 814 / 823 / 826-1	4	4	6	6
WMX 803 / 804 / 813 / 814 / 823 / 826-2	4	2	6	4
WMX 803 / 804 / 813 / 814 / 823 / 826-3	3	3	6	6
WMX 803 / 804 / 813 / 814 / 823 / 826-4	4	4	4	4
WML 860-1	3	3	6	6
WML 860-2	2	2	4	4
WML 860-3	3	3	6	6
WMB 801 / 802	2	2	4	4
WMB 811 / 812 / 815 / 816 / 817 / 818*	2	2	4	4

* When having two locking actuators on one motor line use: 1 x WMB 811 and 1 x WMB 812, 1 x WMB 815 and 1 x WMB 816 or 1 x WMB 817 and 1 x WMB 818

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MotorController

Variants	Item number
MotorController 6A	WCC 106 UL

Accessories	Item number
Comfort keypad, for surface mounting	WSK 103
Momentary rocker switch	CL - 1631
Key switch	CL - 2354
Room thermostat: temperature (Celcius based)	WLA 110
Wind/rain sensor	WLA 330
Rain sensor	WLA 331

All dimensions are originally in metric units and converted into imperial units.
For exact measurements please refer to documentation with metric values.